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DISCOVERY OF A LARVAL HOSTPLANT FOR *ANNAPHILA LITHOSINA* WITH NOTES ON THE SPECIES (NOCTUIDAE: AMPHIPYRINAE)

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On May 13, 1967, it was the author's pleasure of discovering larvae and eggs on *Mimulus guttatus* DC. which were thought to be deposited by specimens of *Annaphila lithosina* Henry Edwards. By observation of the *Mimulus* through late morning and early afternoon, oviposition by *lithosina* was observed. This phenomenon was studied quite closely, and occurred between 1:00 P.M. and 1:30 P.M. (Pacific Daylight Saving Time).

The female would hover over small clumps of *Mimulus* for a few seconds, alight on new growth and walk over the area, apparently examining the new shoots for an oviposition sight, and perhaps also in some way attempting to detect the presence of previously deposited eggs by members of the same species. The value of female *lithosina* being able to detect the presence of eggs of her own species would be of paramount importance in exhibiting awarness of food supply versus population density for the immatures to emerge in due time. Whether this "ability" is in reality present in *lithosina* is doubtful, and could only be positively ascertained through timely intricate experimentation; *but,* when females alighted on new growth that already contained what seemed to the observer to be an overadequacy of eggs in relation to the amount of plant material available, they would not oviposit, but would seek another clump of new growth.

When a female located the "desired" clump, she would remain in one position for a few seconds, and while slowly waving her wings up and down, would thrust the abdomen downward between new leaves or sepals, and would either singly deposit

an egg, or would lay up to 10 or 12 in a row. Eggs were also deposited on stems and some of the older growth of the plant. She would then move to another site on the same clump and repeat the same process until a number of eggs had been deposited. On a single stalk of new growth, as many as over 75 eggs were counted.

If gusts of wind would appear in sufficient force to shake the plant vigorously, the female would either return to her hovering above the plant, or would fly away to another clump. If she returned to her hovering position, generally a few inches to nearly a foot above the plant, she would return soon after the gust of wind subsided and continue oviposition. Examination of *Mimulus* flowers yielded one second instar larva, and some damage to petals was evident; however, the majority of flowers examined showed only a few to have been fed on . . . presumably by immature *lithosina.*

The adult *lithosina* abounded in this study area which is located 3 miles east of Auburn, in El Dorado County, California, and a number of specimens were collected with minimal effort. Adults were also collected 15 miles northeast of Auburn, Placer County, again in the close proximity with *Mimulus guttatus.* In previous years the author and associates have collected *lithosina* near the Feather River at Elephant Butte, Plumas County, California and *Mimulus guttatus* was present, but prior to the present time, this species was not a suspect larval host-plant, and therefore was not examined for eggs or larvae.

This year adult *lithosina* were collected in mid morning during which time they were seen to alight on green foliage while exhibiting the typical "wing-waving" pattern so noteworthy of members within the genus. As noon and early to mid afternoon came about, adults were observed feeding on the flowers of *Montia parviflora* (Moq.) Greene, *Nemophila heterophylla* F. and M.; one specimen was taken while in association with *Rannunculus californicus* Benth., but it was not ascertained whether or not the specimen was actually feeding. Another foodplant adult *lithosina* were collected on is *Plagiobothrys nothofulvus* Gray (personal communication with Mr. Terry A. Sears), but the author was unable to locate *lithosina* feeding on this plant species. At no time were any adult specimens of *lithosina* seen feeding on the flowers of *Mimulus guttatus.*

As is usual with the large, succulent form of *M. guttatus,* the specimens concerned were growing at the edge of a stream at

± 2,000′ elevation where moisture is available well through the flowering season. The surrounding environment is intermixed deciduous and coniferous woodland with occasional meadows to be found. It is possible that *lithosina,* like other members of the genus is host specific on *M. guttatus,* as time may bear out. To my knowledge *M. guttatus* is abundant throughout the known range of *lithosina.*

It is rather interesting to note a peculair quotation referring to the immature stages of *lithosina* as quoted by Rindge and Smith (1952). It reads as follows: "Larvae feeding in numbers on larvae of wasps. Sacramento, Calif. Harry S. Smith Febr. 16, 1915." It is highly unlikely that this observation (?) is representative of the normal feeding habits of immature *lithosina,* and it is possible that this claim has no foundation in reality. Some lepidopterous larvae will turn cannibalistic when under an ecological stress such as food shortage, but in most instances this habit should not be considered usual. There is no actual proof that the specimen bearing the aforementioned label was one of these wasp consumers, but Rindge and Smith (op. cit.) do state of the specimen "The wings of this specimen, a male, are rudimentary, but a genitalic preparation shows that it is properly referred to this species."

At present, the author is attempting to rear specimens of *lithosina,* and should success occur, detailed descriptions, illustrations and setal maps will be presented in an additional paper. Comparisons are being made between natural populations and laboratory populations in relation to duration from egg to adult. With the large natural population at hand, perhaps the observation of parasites and predators will be made.

A. lithosina is in the species group of the genus comprised of *lithosina, miona* Smith, and *casta* Henry Edwards. For a colored photograph of the members of this species groups, see "A reevaluation of *Annaphila casta*" (Buckett, 1966). To my knowledge, no larval hostplant records have been published concerning either *miona* or *casta,* but I believe Mr. Chris Henne (personal communcation) has worked these out and will publish the results in the near future.

LITERATURE CITED

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